

# Bio Medical Waste Awareness and Implementation Gap-Bridging the Gap “Cleanliness is next to Godliness”

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## **Abstract**

A study has been carried out to ascertain, level of awareness about Biomedical Waste Management and the compliance to proper segregation and management. It was carried out in a private tertiary care 150 bedded hospital located in Udaipur, India to assess the awareness and attitude of the hospital staff, to document the ongoing practices, enlisting the deficiencies, to identify the root cause of non-compliance and to suggest measures to improve biomedical waste management compliance. An anonymous questionnaire survey was conducted to determine the awareness about the BMW policies and practices, their perception about BMW and level of on ground practices were monitored by observation method. Various training program were done and education material was displayed in the hospital. After the corrective measures were done the result shows improvement of 13%. The study shows that there is no specific strategy exists but an urgent need to increase awareness and regular audit is key to success.

A total of 90 health care personnel comprising of doctors, nurses, ward attendant and housekeeping staff participated in pre and post training session. During the study it was found that there is a gap in awareness and implementation which can be majorly because of lack of monitoring.

## **Keywords:**

Bio Medical Waste, Bed Side Attendant, Housekeeping Staff

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## **Introduction**

Biomedical wastes are defined as waste that is generated during the diagnosis, treatment or immunization of human beings or animals, or in research activities pertaining thereto, or in the production of biological [7] [6], [4]. Medical care is most vital for our life, health and well being but the waste generated from medical activities can be hazardous, toxic and even lethal because of their high potential to transmit diseases. Improper management of waste generated in health care facilities causes a direct health impact on the community, the health care workers and on the environment [5].

## **Bio Medical Waste Management Rules**

In present scenario waste management is one of the important public health measures. In 21st century with increased use of disposable material and the presence of

dreaded disease like Hepatitis – B, AIDS etc. It is utmost important to take care of the infected and hazardous waste to save the mankind from disaster.

It lead to the formulation of Biomedical Waste (Management and Handling) Rules, 1998 of India. In-case of non- fulfillment of any guideline is punishable offense [2], [3].

## **Importance of Proper Biomedical Waste Management**

Biomedical waste management is one of the important factor of hospital as it not only reduces the risk of healthcare worker injuries but also minimize the infectious waste in the society [1], [6]. Improper management of it leads to:

1. Sharp injuries to healthcare workers and waste handlers involve in process of disposal of waste, which can lead to transfer of infectious diseases.

2. Spread of Nosocomial infections in patients from poor infection control practices
3. Hazardous chemical mix with water or soil (like chemotherapy & radioactive waste) related risk
4. Air, soil and water pollution by mixing waste with municipal waste and spread in locality an improper segregation of waste leading to toxic gas emitting from common waste management facility (CTF) i.e. Plastic waste mixed with yellow waste which is incinerated lead to toxic fume production etc.
5. Reuse of disposables items which lead to transmission of infectious diseases
6. To increase waste in the society

**Aims**

1. To assess knowledge, attitude and practices of BMW (Bio-medical Waste Management) among healthcare worker of different categories doctors, staff nurses, laboratory technicians, ward lady and housekeeping staff
2. To know the difference in the levels of awareness and practice regarding BMW
3. To provide recommendations for proper BMW Management

**Material & Methods**

This was a Cross-Sectional study conducted among health care personnel working at 150 bedded hospitals, at Udaipur, Rajasthan. A sample of 30% was selected randomly from each of the 4 categories of staff (Doctor, Nursing, BSA {ward attendant} and Housekeeping), a total of 90 (30% of total staff) health care personnel comprising of doctors, nurses, ward attendant and housekeeping staff participated. Study period two months (September-14 to November-14) Awareness was checked by collecting data with a pre-designed proforma with a structured questionnaire. Implementation of waste management segregation norms was checked by observation method.

**Results**

A sample size of 30% (90) of total staff were interviewed & observed. The study reflects that pre-training / base line data of BMW practices was found (reference table-1)

1. 79% were aware of the BMW segregation (observed based on questioner, where as 90% staff was agreed that to be trained. There is a clear cut gap found in BMW management awareness and practices on ground.
2. Implementation in Housekeeping staff was found higher than the awareness level this can be because poor of literacy level

Table-1: Shows the Pre-Training/Baseline Data-about Level of Awareness, Training, Implementation and gap between Awareness & Implementation among different category

Pre Training/Baseline				
Category	Awareness	Training	Implementation	Awareness & Implementation Gap
Doctor's (n=12)	80%	90%	67%	13%
Nursing (n=45)	83%	94%	75%	8%
BSA(n=24)	78%	86%	75%	3%
H.K(n=9)	74%	93%	85%	-11% Awareness was in form of written questionnaire, negative difference may be because of poor literacy rate
<b>Total</b>	<b>78.8%</b>	<b>90.8%</b>	<b>75.5%</b>	

Post Training: It was found that

1. 100% housekeeping staff was found to be trained but only 90% were able to demonstrate the practices.
2. Still gap found in BMW management awareness and practices on ground, but have reduced (focus area)
3. Where as department-wise analysis shown that the Neuro ICU has 100% compliance on the BMW management norms at any given point of time. When the situation was deeply analyzed it revealed that incharges plays a major role, Neuro ICU incharge is very strict, follows and demonstrate the right way to do the work.

Table-2: Shows the **Post Training** Data about Level of Awareness, Training, Implementation and gap between Awareness & Implementation among different category

Post Training				
Category	Awareness	Training	Implementation	Awareness & Implementation Gap
<b>Doctor's (n=12)</b>	90%	96%	85%	5%
<b>Nursing (n=45)</b>	95%	97%	92%	3%
<b>BSA(n=24)</b>	86%	99%	86%	0%
<b>H.K(n=9)</b>	88%	100%	90%	-2%
<b>Total</b>	89.8%	98.0%	88.3%	

An aggressive training plan was prepared to assure all employees working in hospital are well verse with the BMW management. Post training result shows awareness of BMW practices was found 98%, whereas the compliance to the on ground practices was raise to 90%. The study revealed there is necessity of training with a periodic follow-up and regular audit.

**Measures to Improve Compliance**

1. Back to Basic Session was organized to revamp the BMW awareness and on ground practices
2. On Job Training for regular follow up of basics of BMW management
3. Emphasis was made that how it is polluting the society and what is done with the waste at CTF (Common Treatment Facility) and importance of their contribution in society
4. Activity Base Learning for ward boys & cleaning staff (games like disposal of waste (mentioned on slip) in right bucket, Group are distributed in color coded bag and they have to find the right matter slip to be discarded in the same color code
5. Bilingual display of waste management protocol near dustbin of nursing station
6. Slogans like "Yellow Yellow Dirty Fellow" (All Body Fluid Contaminated Burning items in yellow), "Ghar Ka

Kachra Kale Me", "Plastic Dalo Lal Me"

7. Regular audit by management personnels and unidentified staff members
8. Infection Control Team (consist of Team Leaders) made aware of their departmental status

**Conclusion and Recommendations**

Study shows that regular training and audit plays vital role in BMW management more emphasis should be given multi-factorial approach and salient observer. Following recommendations are proposed to improve the compliance.

1. BMW management training should be made compulsory for all health care worker working and new joining of the hospital.
2. Regular reorientation sessions/ follow-up should be conducted
3. Regular BMW management audit should be done from time-to-time to asses the status
4. External audit to be conducted to have a unbiased or unaltered monitoring
5. Data sharing with team
6. More emphasis to be made that it is a social cause and develop a sense of social responsibility

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